THE NATIONAL INVASIVE SPECIES COUNCIL (NISC)

2008 – 2012 National Invasive Species Management Plan

August 2008

PREPARE **PREVENT** **PROTECT**

National Invasive Species Council

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Executive Summary

Invasive Species introduced into the United States from around the globe are affecting plant and animal communities on our farms, ranches and coasts; and in our parks, waters, forests, and backyards. As global climate patterns shift, the distribution of species will change, and so will the susceptibility of particular habitats to the impacts of new species introductions. Human activity such as trade, travel and tourism have all increased substantially, increasing the speed and volume of species movement to unprecedented levels. Invasive species are often unintended hitchhikers on cargo and other trade conveyances. Still more species are deliberately introduced as pets, ornamental plants, crops, food, or for recreation, pest control or other purposes. Most nonnative species, including most of our sources of food and fiber, are not harmful; and many are highly beneficial. A small percentage of nonnative species cause great harm to the environment, the economy or human health. Nonnative species that cause harm are collectively known as invasive species.

It is difficult to estimate the total economic harm caused by invasive species, however invasive plants alone result in two to three billion dollars in crop loss each year (Bridges 1992). Aquatic invasive species clog irrigation canals and pipes that supply water to power plants and factories. Invasive plants, pathogens and parasites cut crop yields and sicken livestock. Humans can be affected directly. Invasive ants cause painful stings. Invasive plant pollen increases the severity of respiratory allergies and the sap of the invasive plant, Giant Hogweed, causes blisters on the skin that can lead to permanent scarring. West Nile Virus (WNV) is an invasive pathogen of humans and animals. As of July 2008, the Centers for Disease Control and Prevention report that 1,086 deaths in the United States were caused by WNV (CDC 2008).

Invasive species (such as kudzu, snakehead fish, zebra mussels, emerald ash borers, sea lamprey, tree of heaven, hydrilla, nutria, West Nile virus, and Sudden Oak Death pathogen) may prey upon, displace or otherwise harm native species. Some invasive species also alter ecosystem processes, transport disease, interfere with crop production, or cause illnesses in animals and humans; affecting both aquatic and terrestrial habitats. For these reasons, invasive species are of national and global concern.

Invasive species populations span geographic and jurisdictional boundaries; thus efforts to manage invasive species must be coordinated across boundaries. In 1999, Executive Order (EO) 13112 established the National Invasive Species Council (NISC), co-chaired by the Secretaries of the Interior, Agriculture, and Commerce. NISC members include the Secretaries of Transportation, State, Defense, Homeland Security, Treasury, and Health and Human Services; the Administrators of the Environmental Protection Agency and the National Aeronautics and Space Administration; as well as the Director of the U.S. Agency for International Development and the U.S. Trade Representative. NISC was charged with providing coordination, planning and overall leadership for federal invasive species programs and reaching out to state, tribal, local and private partners.

EO 13112 also required the Secretary of the Interior to establish the Invasive Species Advisory Committee (ISAC), a group of 30 nonfederal stakeholders from diverse constituencies (representing state, tribal, local and private concerns) around the Nation, to advise NISC on invasive species issues. In addition, EO 13112 called on NISC to prepare and issue the first national plan to deal with invasive species. Completed in 2001, the National Invasive Species Management Plan, Meeting the Invasive Species Challenge (2001 Plan), served as a comprehensive “blueprint” for federal action on invasive species, as well as NISC’s primary coordination tool. This coordination tool provided the first comprehensive national plan for

invasive species action. It called for about 170 specific actions within nine categories of activity, about 100 of which have been established or completed. Actions identified in the 2001 Plan continue to be implemented.

The 2008–2012 National Invasive Species Management Plan (2008 Plan) is the first revision of the 2001 Plan, as mandated by EO 13112. This document will direct Federal efforts (including overall strategy and objectives) to prevent, control and minimize invasive species and their impacts within the next five fiscal years (2008 through 2012). If necessary, it may be updated more frequently to reflect changes in circumstances, agency plans and priorities. NISC member agencies, ISAC members, NISC staff, stakeholders and other experts have provided input in drafting this revision, which replaces the 2001 Plan.

The 2008 Plan is focused upon five "Strategic Goals": Prevention; Early Detection and Rapid Response; Control and Management; Restoration; and Organizational Collaboration. To accomplish these strategic goals, critical support for efforts such as research, data and information management, education and outreach, and international cooperation elements are included in pertinent sections of the 2008 Plan.

Each of the five strategic goals specifies on-going objectives and the long-term vision for success in that area. Under each strategic goal, "Objectives" describe what is to be accomplished over the next five years, and "Implementation Tasks" describe what agencies expect to do in order to accomplish that objective. Within the "Implementation Tasks", there are "Performance Elements" which allow for measurement of progress towards accomplishing identified tasks.

The 2008 Plan is not a comprehensive list of all federal invasive species actions. It is a targeted set of priority strategic action plans with objectives and implementation tasks that are intended to be completed in the next five years. The over-arching strategic goals and strategic action plan objectives remain consistent with the 2001 Plan. The accomplishment of specific implementation tasks and performance elements will be dependent upon agency budgets, and in some cases, legal or regulatory changes.

The 2008 Plan currently requires the work of 35 different "entities" (typically agencies or bureaus within NISC members' departments and agencies) to achieve a total of 87 Performance Elements. Participating agencies are identified either as a "Lead" or a "Participant" to describe their role in accomplishing a specific Performance Element.

Prevention is the first-line of defense. The Strategic Goal for Prevention calls for preventing the introduction and establishment of invasive species to reduce their impact on the environment, the economy and health of the United States.

Even the best prevention efforts cannot stop all invasive species. **Early Detection**, rapid assessment and **Rapid Response** (EDRR) may act as a critical second defense. The EDRR Strategic Goal calls for developing and enhancing the capacity in the United States to identify, report and effectively respond to newly discovered and localized invasive species.

The spread of widely established invasive species can be slowed and their impacts reduced. The **Control and Management** Strategic Goal calls for containing and reducing the spread of invasive populations to minimize their harmful impacts.

Invasive species can severely undermine the ability of plants and animal communities to recover. The **Restoration** Strategic Goal calls for the restoration of high-value ecosystems to meet natural resource conservation goals by conducting restoration efforts on multiple scales.

Invasive species cross jurisdictional boundaries, making coordination and collaboration critical to success. The **Organizational Collaboration** Strategic Goal calls for maximizing organizational effectiveness and collaboration on invasive species issues among international, federal, state, local and tribal governments, private organizations and individuals.

The problem of invasive species may at times seem overwhelming. However, considerable success is being achieved in the prevention, detection, eradication and control of some invasive species along with increasing emphasis in the restoration of ecosystems that have previously been dramatically affected by invasive species. Additional research and information exchange; new detection and eradication techniques; and innovative control methodologies and collaborative models are increasing our capacity to address invasive species problems. The 2008–2012 National Invasive Species Management Plan takes a strategic approach and builds on existing programs to maximize federal efforts over the next five years to prevent and control invasive species in order to enhance our environment, economy and human health.

Introduction

Invasive Species introduced into the United States from around the globe are affecting plant and animal communities on our farms, ranches and coasts; and in our parks, waters, forests, and backyards. As global climate patterns shift, the distribution of species will change, and particular habitats may become more or less susceptible to the impacts of new species introductions. Human activity such as trade, travel and tourism have all increased substantially, increasing the speed and volume of species movement to unprecedented levels. Invasive species are often unintended hitchhikers on cargo and other trade conveyances. Still more species are deliberately introduced as pets, ornamental plants and food, or for recreation, pest control or other purposes. Most nonnative species, including many of our sources of food and fiber, are not harmful; and many are highly beneficial. A small percentage of nonnative species cause great harm to the environment, the economy, or human health. Nonnative species that cause harm are collectively known as invasive species.

Executive Order 13112 (EO 13112) defines an invasive species as:

"an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health."

The definition includes many types of invasive species such as animals, plants and microorganisms. It focuses upon invasive species which are harmful, rather than focusing on nonnative species, most of which are not harmful. Several different terms have been used to describe invasive species, such as: "alien", "aquatic nuisance species", "injurious wildlife", and "noxious." In 2006, the Invasive Species Advisory Committee (ISAC) issued a white paper to provide advice on what is intended by the term "invasive species", and why so many different terms have been used in the past. The ISAC white paper is available on the Web at: <http://www.invasivespeciesinfo.gov/docs/council/isacdef.pdf>.

Invasive species *(such as West Nile virus and Sudden Oak Death pathogen, kudzu, tree of heaven, hydrilla, zebra mussels, emerald ash borers, sea lamprey, snakehead fish, and nutria)* may prey upon, displace or otherwise harm native species. Some invasive species also alter ecosystem processes, transport disease, interfere with crop production, or cause disease in animals or humans; affecting both aquatic and terrestrial habitats. For these reasons, invasive species are of national and global concern.

Invasive species populations span geographic and jurisdictional boundaries; thus efforts to manage invasive species must be coordinated across boundaries. In 1999, EO13112 charged all federal departments whose actions may affect the status of invasive species, to the extent practicable and permitted by law, to work together within their current authorities to prepare, prevent, and protect resources from harm caused by invasive species. EO 13112 also established the National Invasive Species Council (NISC), co-chaired by the Secretaries of the Interior, Agriculture, and Commerce. NISC was charged with providing coordination, planning and overall leadership for federal invasive species programs and outreach to state, tribal, local and private partners. NISC members include the Secretaries of Transportation, State, Defense, Homeland Security, Treasury, Health and Human Services; the Administrators of the Environmental Protection Agency and National Aeronautics and Space Administration; as well as the U.S. Trade Representative and an official of the U.S. Agency for International Development.

EO 13112 also required the Secretary of the Interior to establish the Invasive Species Advisory

Committee (ISAC), a group of 30 non-Federal stakeholders from diverse constituencies around the Nation (representing state, private, local and tribal concerns), to advise NISC on invasive species issues. In addition, it directed NISC to prepare and issue the first national plan to deal with invasive species. Completed in 2001, The National Invasive Species Management Plan, *Meeting the Invasive Species Challenge* (2001 Plan), serves as a comprehensive "blueprint" for federal action on invasive species, as well as NISC's primary coordination tool.

This document is the first revision of the 2001 Plan, as mandated by EO 13112. The *2008 –2012 National Invasive Species Management Plan* (2008 Plan) will direct federal efforts (including overall strategy and objectives) to prevent, control and minimize invasive species and their impacts within the next five fiscal years (2008 through 2012). If necessary, it may be updated more frequently to reflect changes in circumstances, agency plans and priorities. NISC member agencies, ISAC members, NISC staff, stakeholders and other experts have provided input in drafting this revision, which is intended to replace the 2001 Plan.

The 2008 Plan currently requires the work of 35 different "entities" (typically agencies or bureaus within NISC members' departments and agencies) to achieve a total of 87 Performance Elements. Participating agencies are identified as either a "Lead" or a "Participant" to describe their role in accomplishing a specific Performance Element.

Federal, state, local and tribal governments, as well as organizations in the private sector, have taken significant steps to meet the challenges posed by invasive species. These steps set the stage for the 2008 Plan and provide direction and focus. An estimated 59 percent of the 2001 Plan's 170 specific actions have been completed or are in progress. Among the products NISC has generated are guidance documents on early detection and rapid response, prioritization of control actions, and an analysis of major pathways for introduction of invasive species. NISC members have developed an *Invasive Species Performance (Crosscut) Budget* for fiscal years 2004–2007. ISAC members completed a white paper interpreting the EO definition of invasive species in 2006, and they provided input on the 2008 Plan and future crosscut budget categories and specific initiatives.

Awareness of the problems caused by invasive species has dramatically increased in the last eight years as evidenced by increased activity at federal, state, and local levels. More than 24 states now have invasive species coordination councils. Local governments and citizens groups of all types are active in invasive species prevention and control. Despite the significant increase in activity and awareness, much remains to be done to prevent and mitigate the problems caused by invasive species.

2008 Plan Structure and Organization

Long-range strategic planning, consistent with other government agencies' strategic plans, is necessary to address complex invasive species issues. The 2008 Plan establishes five long-term "Strategic Goals" that focus federal efforts in the areas of invasive species work related to:

1) **Prevention (P),**
2) **Early Detection and Rapid Response (EDRR),**
3) **Control and Management (CM),**
4) **Restoration (R), and**
5) **Organizational Collaboration (OC)**.

The strategic goals are ongoing and serve as guideposts for managing invasive species. Each strategic goal has an associated Strategic Action Plan with long-term "Objectives" and shorter-term "Implementation Tasks" and "Performance Elements". Accomplishment of the strategic action plan objectives within each Strategic Goal will likely take longer than five years. However, the 2008 Plan specifically describes implementation tasks for each objective that the agencies expect to accomplish during the life of the 2008 Plan. Where practicable, implementation tasks define specific performance elements that can be used to gauge progress toward accomplishing the implementation tasks and achieving the objectives. These performance elements specify agencies and bureaus/offices that are assigned responsibility to be the "Lead" or a "Participant" in accomplishing each implementation task.

<u>Structural Hierarchy of the 2008 Plan</u>

- **STRATEGIC GOALS** (P, EDRR, CM, R, and OC)
  - ***Strategic Action Plan for each Strategic Goal***
    - **OBJECTIVES** (e.g., P.1, P.2, P.3, etc.)
      - **Implementation Tasks** (e.g., P.1.1, P.1.2, P.1.3, etc.)
        - **Performance Elements** (e.g., P.1.1.1, P.1.1.2, P.1.1.3, etc.)
          - **Leads** [Agency (Bureau/Office)]
          - **Participants** [Agency (Bureau/Office)]

Although they are not highlighted as strategic goals, the following continue to play a crucial role in achieving success: (1) research, (2) information sharing and data management, (3) international cooperation, (4) education and outreach.

The 2008 Plan is not a comprehensive list of all federal invasive species actions. It is a targeted set of priority strategic action plans with objectives and implementation tasks that are intended to be completed in the next five years. The over-arching strategic goals and strategic action plan objectives remain consistent with the 2001 Plan. The accomplishment of specific implementation tasks and performance elements will be dependent upon agency budgets, and in some cases, legal or regulatory changes.

There have been significant advances in policy, information exchange, program activity, public awareness and control and management tools for invasive species since the 2001 Plan. A more strategic approach to prevent and minimize harm caused by invasive species over the next five years involves taking advantage of what has been learned, and creating next steps that are well planned and coordinated.

Within each implementation task, there are indices of progress called “Performance Elements.” Each performance element identifies the federal agency that has a leadership (Lead) or a participant role. Because of the varied nature of the work, the responsibilities associated with a lead or participant role varies among performance elements. The specific responsibilities of leads and participants will be determined by those engaged in the work. At a minimum, participants will play a role in and provide information concerning that agency’s actions on that performance element. Leads will play a major role by providing their agency’s information, and will also be the primary source of information concerning joint accomplishments for that performance element. Information provided by leads and participants will be summarized in reports prepared by NISC staff.

Prevention

STRATEGIC GOAL 1: Prevent introduction and establishment of invasive species to reduce their impact on the environment, economy and health of the United States.

Introduction

Prevention is the first-line of defense. It can be the most cost-effective approach because once a species becomes widespread; controlling it may require significant and sustained expenditures. Therefore, public investment in prevention tools, resources and infrastructure is indispensable in protecting human health, agriculture and natural resources. Since the original Plan was written in 2001, progress has been made on risk analyses, screening processes, evaluation of pathways, and the scientific understanding of the ecological effects of invasive species. A joint Aquatic Nuisance Species Task Force (ANSTF)/NISC Prevention Committee is currently addressing prevention issues.

Long-term success in prevention will reduce the rate of introduction, the rate of establishment and the damage from additional invasive species in the United States. Measuring success requires accurate baseline data and monitoring systems to measure long-term trends. The Implementation Tasks identified in the 2008 Plan focus on accomplishing a limited number of important and achievable tasks related to prevention within the next five years. This will substantially contribute toward the accomplishment of the Strategic Goals and Objectives.

OBJECTIVE P.1: PREVENT ESTABLISHMENT OF INTENTIONALLY INTRODUCED INVASIVE SPECIES. *Develop fair and practical screening processes that evaluate different types of species moving intentionally in trade. Encourage agencies to modify and incorporate the processes into their own regulatory and non-regulatory programs.*

- **Implementation Task P.1.1:** Develop screening processes to evaluate invasiveness of plants which are intended for planting and are moving in trade.

  Performance Element P.1.1.1: APHIS publishes proposed rule(s) on intentional introduction of potentially invasive plant species, including mechanisms to evaluate invasiveness potential and restrict introduction of species likely to be invasive.
  Lead: USDA (APHIS)
  Participants: USTR; USDA (CSREES, ARS, NRCS, FS)

- **Implementation Task P.1.2:** Develop screening processes to evaluate invasiveness of terrestrial and aquatic nonnative wildlife (e.g., fish, mollusks, crustaceans, mammals, birds, reptiles and amphibians) moving in trade.

  Performance Element P.1.2.1: Develop a draft screening process.
  ***Leads:* DOI (FWS); DOC (NOAA)**
  ***Participants*: DOI (USGS, NPS); USDA (APHIS, ARS); USTR; EPA**

- **Implementation Task P.1.3:** Develop a process to identify high-priority invasive plants, animals, and plant or animal pathogens for agencies' actions.

  Performance Element P.1.3.1: Prioritization process will be developed and distributed widely via the internet, at www.invasivespecies.gov> and <www.invasivespeciesinfo.gov> for agency use.
  ***Lead*: USDA (APHIS)**
  ***Participants*: USDA (ARS, CSREES, NRCS, ERS); DOI (FWS); USTR**

OBJECTIVE P.2: PREVENT ESTABLISHMENT OF UNINTENTIONALLY INTRODUCED INVASIVE SPECIES INTRODUCED THROUGH HIGH RISK PATHWAYS.

- **Implementation Task P.2.1:** Reduce the movement of invasive plants pests and pathogens with propagative plant material.

  Performance Element P.2.1.1: APHIS will publish proposed rule(s) to revise the Quarantine on Plants for Planting (known as "Q37").
  ***Lead*: USDA (APHIS)**
  ***Participant*: USDA (ARS)**

  Performance Element P.2.1.2: Contribute to the development of a new International Plant Protection Convention (IPPC) standard for Plants for Planting that protects against pests.
  ***Lead*: USDA (APHIS)**
  ***Participants*: USDA (ARS, FS)**

- **Implementation Task P.2.2:** Sponsor research on new technologies for ballast water management and formally assess their efficacy. Sponsor research on other ship-based pathways, assessing their impacts to the environment.

  Performance Element P.2.2.1: Complete a minimum of five full scale projects.
  ***Lead*: DOC (NOAA)**
  ***Participants*: DHS (CG); DOI; DOT (OST, MARAD, SLSDC); EPA; DOD (COE)**

  Performance Element P.2.2.2: Initiate other ship-based pathways studies.
  ***Leads*: DOC (NOAA); DHS (CG)**
  ***Participants*: EPA; DOT**

  Performance Element P.2.2.3: Support additional research

efforts to mitigate movement of invasive species by aquatic recreation.
***Lead*: (DOI) FWS**
***Participants*: DOC; DOI (USGS); EPA**

- **Implementation Task P.2.3:** Support efforts in new techniques or practices to reduce the spread of aquatic invasive species through recreational activities.

  Performance Element P.2.3.1: Reduce the spread of zebra and quagga mussels in the Western United States**.**
  ***Lead*: DOI (FWS, NPS, USGS)**
  Participants: None

- **Implementation Task P.2.4:** Reduce movement of invasive species on or in Solid Wood Packing Materials (SWPM).

  Performance Element P.2.4.1: Evaluate the importance of residual bark on SWPM, and take appropriate management or regulatory measures.
  ***Lead*: USDA (APHIS)**
  ***Participants*: USDA (FS, ARS); DHS; USTR**

OBJECTIVE P.3: IMPROVE THE INTERNATIONAL, FEDERAL, STATE, AND TRIBAL STANDARDS AND GUIDELINES TO PROTECT THE UNITED STATES FROM INVASIVE SPECIES.

- **Implementation Task P.3.1:** Strengthen and/or support the development of risk-based sanitary and phytosanitary international standards and guidelines under IPPC, Office International des Epizooties (OIE), North American Plant Protection Organization (NAPPO) and other international fora.

  Performance Element P.3.1.1: In cooperation with others, APHIS will approve and implement sanitary and phytosanitary standards developed in the appropriate international fora.
  ***Lead*: USDA (APHIS)**
  ***Participants*: DOS; USDA (ARS); NISC; USTR; EPA; DOI (FWS)**

  Performance Element P.3.1.2: Provide training and capacity building for developing nations to assist them in understanding, adopting, and implementing international standards and guidelines for sanitary and phytosanitary measures.
  ***Lead:* USDA (FAS)**
  ***Participants:* USDA (APHIS); DOI (FWS, USGS); USAID; USTR**

- **Implementation Task P.3.2:** Improve and expand domestic and international risk analysis processes. Include new risk methodologies and scientific advances in understanding invasive species. Expand the scope of conducting risk assessments to include all nonnative terrestrial and aquatic organisms moved as a result of human activity or action.

  Performance Element P.3.2.1: Revise 1996 Aquatic Nuisance Species Task Force (ANSTF) risk analysis process; submit draft for review in 24 months, and finalize in 36 months.
  Leads: DOC (NOAA); DOI (USGS); ANSTF
  Participants: NISC, DOI (FWS); DOS; EPA; USDA (APHIS, ARS); DOD (COE); USTR

  Performance Element P.3.2.2: Provide training and capacity building for developing nations to assist them in utilizing new risk assessment methodologies and incorporate scientific advances in the understanding of invasive species.
  Lead: USDA (FAS)
  Participants: USDA (APHIS, ARS); USAID; DOS

  Performance Element P.3.2.3: Provide training in Hazard Analysis and Critical Control Points (HACCP) and other risk-based methods to minimize introduction of invasive species.
  Lead: DOI (FWS)
  Participants: USDA (APHIS); DOC (NOAA)

- **Implementation Task P.3.3:** Design a process to identify and rank pathways by invasive species risk. Encourage agencies to modify and incorporate the process into their own regulatory and nonregulatory programs.

  Performance Element P.3.3.1: Prepare a final draft of the pathway analysis process in 24 months; complete**, distribute and encourage use** in 36 months.
  Lead: USDA (APHIS)
  Participants: DOC (NOAA); DOI (FWS, USGS); USDA (FS, ARS); EPA; USTR; NISC Staff

- **Implementation Task 3.4:** Integrate agency data sets to improve assessment of invasive species threats prior to arrival.

  Performance Element P.3.4.1: Three (3) or more data sets are integrated and utilized.
  Lead: USDA (APHIS)
  Participants: USDA (ARS, FS, CSREES, NRCS); DHS

- **Implementation Task P.3.5:** Support efforts by non-federal stakeholders to develop/enhance codes of conduct and Best Management Practices (BMPs).

  Performance Element P.3.5.1: Encourage non-federal stakeholders to publish codes of conduct and BMPs on the Web.
  ***Lead*: NISC Staff**
  ***Participants*: DOC (NOAA); DOI (FWS, BLM); USDA (APHIS, FS, NRCS, ARS); DOS**

- **Implementation Task P.3.6:** Share BMPs among NISC members to prevent or mitigate invasive species establishment or movement.

  Performance Element P.3.6.1: Distribute any new BMPs that NISC Staff are made aware of to all relevant NISC members **and other interested parties.**
  ***Lead*: NISC Staff**
  ***Participants*: All NISC Members**

Early Detection and Rapid Response

STRATEGIC GOAL 2: Develop and enhance the capacity to identify, report and effectively respond to newly discovered/localized invasive species.

Introduction

Even the best prevention efforts cannot stop all invasive species. Early detection, rapid assessment and rapid response (EDRR) is a critical second defense against the establishment of invasive populations. EDRR increases the likelihood that localized invasive populations will be found, contained, and eradicated before they become widely established. EDRR can slow range expansion, and avoid the need for costly long-term control efforts. Effective EDRR depends upon the timely ability to answer critical questions such as:

a) What is the species of concern, and has it been authoritatively identified?
b) Where is it located and likely to spread?
c) What harm may the species cause?
d) What actions (if any) should be taken?
e) Who has the needed authorities and resources?
f) How will efforts be funded?

EDRR requires collaboration among federal, tribal, state, local governments, nongovernment organizations (NGOs) and the private sector. The ability to conduct EDRR has improved, and a great deal is being accomplished. NISC continues to assess the current federal capabilities and encourage agencies to enhance their EDRR activities. However, access to invasive species taxonomic and mapping information, funds, and technical resources limit efforts.

There are three components of EDRR–Early Detection (ED), Rapid Assessment (RA), and Rapid Response (RR).

In order to conduct EDRR, invasive species populations must first be found. Specimens have to be authoritatively identified, and the boundaries of the infestations determined. These essential ***Early Detection (ED)*** efforts require resources, planning, and coordination. Invasive species are often detected by chance, but they can also be detected by trained individuals and personnel through targeted invasive species surveys and by monitoring specific areas. Area monitoring, taxonomic resources and species surveys provide the information needed to construct accurate distribution maps. Maps and other ecological/biological information are critical to planning and response actions. However, invasive species monitoring, mapping, and taxonomic resources and capabilities are still lacking for much of the United States.

Rapid Assessment (RA) encompasses actions necessary to determine the appropriate response, including the current and potential range of the invasive species' infestation(s). The RA process identifies the invasive species interdiction options, timing and overall strategy for actions and provides reliable information to the public. Advanced planning that anticipates invasions and takes into account that transjurisdictional issues greatly expedites efforts.

Rapid Response (RR) is a systematic effort to eradicate or contain invasive species while infestations are still localized. RR may address totally new introductions into the United States or range expanding infestations of previously established species. Timeliness is key to RR. It is critical to quickly mobilize resources to intensely control an infestation before it becomes more widely established. Many RR efforts are led by State or local officials working with private landowners. Invasions can rapidly overwhelm local resources. The ability to share resources across jurisdictional boundaries, form strategic partnerships, and have "ready" access to plans, funds and technical resources are critical components of RR.

OBJECTIVE EDRR.1: ENHANCE CURRENT MONITORING EFFORTS FOR EARLY DETECTION.

- **Implementation Task EDRR.1.1:** Identify and evaluate monitoring efforts for high-priority invasive species and supporting technological infrastructure including an evaluation of their geographic and temporal coverage.

  Performance Element EDRR.1.1.1: Evaluate monitoring efforts for high-priority invasive species and make recommendations to address critical gaps.
  Leads: USDA (APHIS); DOI (USGS)
  Participants: USDA (ARS, CSREES, FS, NRCS); DOI (NPS, FWS, BLM); DOC (NOAA); EPA; DHS; DOD (COE)

- **Implementation Task EDRR.1.2:** Prepare protocols to identify high priority locations for targeted monitoring efforts. Initiate three systematic monitoring pilot programs.

  Performance Element EDRR.1.2.1: Develop protocols; select monitoring programs/locations and implement pilot projects.
  Leads: DOI (USGS); USDA (APHIS)
  Participants: DOI (FWS); DOT; DHS; DOC (NOAA); EPA; USDA (FS, CSREES, ARS)

- **Implementation Task EDRR.1.3:** Improve and support recruitment and training of volunteers for EDRR efforts at the local level, utilizing existing programs and infrastructure (such as Master Gardeners, Master Naturalists, Cooperative Extension, Sea Grant, National Wildlife Refuge "Friends" Groups, 4-H Groups, National Park support groups, and others).

  Performance Element EDRR.1.3.1: Develop guidance for volunteer training on at least one monitoring program. Publish guidance on invasivespeciesinfo.gov.
  Lead: USDA (APHIS)
  Participants: DOI (USGS, FWS, NPS, BLM); USDA (CSREES, FS, ARS, NRCS); DOD (COE); DOC (NOAA)

  Performance Element EDRR.1.3.2: Develop at least two citizen-based networks to detect and monitor for new invasive species.
  Lead: DOI (FWS)
  Participants: DOC (NOAA); DOI (NPS, BLM); USDA (FS, NRCS, CSREES); EPA

- **Implementation Task EDRR.1.4:** Enhance plant and animal pathogen detection methods.

  Performance Element EDRR.1.4.1: Develop enhanced identification methods and supportive technologies for at least one group of pathogens.
  ***Lead*: USDA (ARS)**
  ***Participants*: DOI (USGS); DHS; HHS; DOD; EPA; USDA (APHIS, CSREES, FS)**

OBJECTIVE EDRR.2: MAKE TAXONOMIC INFORMATION MORE READILY AVAILABLE TO GOVERNMENTS AND THE PUBLIC.

- **Implementation Task EDRR.2.1:** Develop or enhance taxonomic expert lists to facilitate identification of terrestrial and aquatic organisms.

  Performance Element EDRR.2.1.1: Identify taxonomic experts for terrestrial plants, invertebrates and vertebrates, plant and animal pathogens, and make their contact information available, as appropriate.
  ***Leads*: USDA (ARS); SI**
  ***Participants*: USDA (APHIS, CSREES, NRCS); DOI (USGS)**

  Performance Element EDRR.2.1.2: Finalize and maintain an updated database of taxonomic experts who can identify invertebrate and vertebrate aquatic species.
  ***Leads*: DOC (NOAA); DOI (USGS)**
  ***Participants*: USDA (APHIS)**

OBJECTIVE EDRR.3: DEVELOP AND ENHANCE CAPACITY AND TOOLS TO SUPPORT EDRR EFFORTS.

- **Implementation Task EDRR.3.1:** Prepare protocols to evaluate and map invasive species risks.

  Performance Element EDRR.3.1.1: Test protocols by mapping current and potential extents of three high-priority invasions.
  ***Leads*: USDA (APHIS); DOI (FWS, USGS)**
  ***Participants:* USDA (CSREES, ERS, FS, NRCS, ARS); DHS ; DOC (NOAA); EPA ; NASA; DOD (COE)**

- **Implementation Task EDRR.3.2:** Engage risk assessment experts to provide authoritative and timely assessments of current or potential invasions.

  Performance Element EDRR.3.2.1: Prepare lists of risk experts for major groups of invasive species (such as plants, terrestrial species, plant pathogens, animal pathogens, or aquatic species.) Identify gaps in available expertise.
  ***Leads*: DOI (USGS); USDA (APHIS)**
  ***Participants*: USDA (ARS, CSREES, ERS, FS, NRCS); DOI (FWS, NPS); DOC (NOAA); DHS; HHS; SI; EPA; DOD (COE)**

- **Implementation Task EDRR.3.3:** Develop and evaluate the use of predictive models to forecast the spread of specific invasive species.

  Performance Element EDRR.3.3.1: Develop and test models to forecast spread of two invasive species.
  ***Leads*: DOI (USGS); USDA (ARS)**
  ***Participants:* EPA, USDA (APHIS, CSREES, ERS, FS); DOI (FWS, NPS, BLM); DOC (NOAA); HHS; SI; DOD (COE)**

OBJECTIVE EDRR.4: ENHANCE EXISTING CAPABILITY TO CONDUCT PLANNING FOR EDRR.

- **Implementation Task EDRR.4.1:** Prepare model guidance or plans that encourage RR contingency planning at the appropriate level (such as, international, national, state, regional or local). Include planning for communications, response funding, cooperative mechanisms and other relevant issues.

  Performance Element EDRR.4.1.1: Identify and evaluate existing RR plans and identify effective mechanisms to enhance cooperation among and between state and federal agencies, and make this information available to response agencies.
  ***Leads*: USDA (APHIS); DOC (NOAA)**
  ***Participants*: USDA (CSREES, NRCS, ARS); HHS; EPA; DOD; NASA; DOD (COE); DOI (FWS)**

  Performance Element EDRR.4.1.2: Identify and describe existing international EDRR cooperation efforts among regional neighbors and trading partners.
  ***Leads*: DOS; USTR; NISC Staff**
  ***Participants*: All NISC Members**

OBJECTIVE EDRR.5: DEVELOP OPTIONS PAPER TO FUND RAPID RESPONSE EFFORTS.

- **Implementation Task EDRR.5.1:** Work with ISAC, states and others to develop mechanisms for cooperation and funding rapid response efforts, such as options for matching grants to states.

  Performance Element EDRR.5.1.1: Explore and prepare options for cooperation and funding RR; and submit to NISC for discussion and selection of preferred alternative(s).
  ***Lead*: NISC Staff**
  ***Participants*: DOI (FWS, BLM, NPS); DOD (COE)**

- **Implementation Task EDRR.5.2:** Explore options for research funding for preparedness and other programs that are required for RR.

  Performance Element EDRR 5.2.1: Prepare and submit to NISC options for funding research for EDRR.
  ***Lead*: NISC Staff**
  ***Participants*: USDA (CSREES, APHIS, ARS, FS)**

Control and Management

STRATEGIC GOAL 3: Contain and reduce the spread and populations of established invasive species to minimize their harmful impacts.

Introduction

Eradication of widespread invasive species may not be feasible. Widespread invasive species are subject to control and management efforts that slow the rate of range expansion and lessen the impacts of invasive populations.

Invasive species can span geographic and jurisdictional boundaries. Their control and management requires interjurisdictional communication and regionally coordinated action. Information on the distribution, abundance, rates of spread, and impacts of invasive species is critical to their control.

Impacts of terrestrial invaders differ from those of aquatic species, and impacts also differ from taxon to taxon. Understanding the ecological, economic, and social impacts of invasive species is important in prioritizing control and management operations.

A variety of control and management tools is needed to assess, remove and contain invasive species populations and guide management decisions. These tools are applied within coordinated and integrated invasive species management strategies that are adjusted, as needed. Lack of financial and human resources often limits the capacity to control and manage invasive species.

OBJECTIVE CM.1: EVALUATE CONTROL AND MANAGEMENT CAPABILITIES AND IDENTIFY STRATEGIC GAPS.

- **Implementation Task CM.1.1:** Identify and evaluate regional invasive species control and management efforts.

  Performance Element CM.1.1.1: Identify and evaluate three regional control and management efforts including their geographic coverage (such as, regions, states or countries within North America.)
  ***Lead*: DOI (BLM)**
  ***Participants*: DOI (FWS, BOR, NPS) DOD (COE); USDA (CSREES, NRCS, APHIS)**

  Performance Element CM.1.1.2: Benchmark, compare and report on at least three control programs within broader regional efforts.
  ***Lead*: USDA (APHIS)**
  ***Participants*: USDA (FS, NRCS, ARS)**

- **Implementation Task CM.1.2:** Identify and address strategic gaps in regional invasive species control and management efforts and tools.

  Performance Element CM.1.2.1: Identify three priority species or locations (including international border locations, if appropriate) that need additional or enhanced control methods.
  Lead: NISC Staff (to collate information)
  Participants: DOI (FWS, BLM, NPS, USGS, BOR); USDA (NRCS, APHIS); DOS; DOC (NOAA); DOD (COE)

  Performance Element CM.1.2.2: Evaluate, develop or enhance three or more biological, chemical, physical or other control methods.
  Leads: USDA (ARS); DOI (USGS); DOD (COE)
  Participants: USDA (FS, NRCS, APHIS) ; DOI (FWS)

  Performance Element CM.1.2.3: Increase acres of land or water included in regional invasive species control and management programs.
  Lead: NISC Staff (to collate information)
  Participants: USDA (NRCS, APHIS); DOI (FWS, BLM, NPS); DOD; DOD (COE)

OBJECTIVE CM.2: REDUCE THE SPREAD AND HARM CAUSED BY INVASIVE SPECIES.

- **Implementation Task CM.2.1:** Reduce the spread of invasive species.

  Performance Element CM.2.1.1: Increase the number of cleaning treatments conducted to address pathways of spread such as potentially contaminated equipment, hikers, anglers, recreation vehicles, watercraft or other conveyances. Monitor effectiveness.
  Leads: USDA (FS); DOD (COE); DOI (BLM)
  Participants: USDA (APHIS, NRCS); DOT ; DOI (NPS, FWS)

  Performance Element CM.2.1.2: Increase the number of acres treated. Encourage state and private sector partners to take steps to reduce the spread of invasive species by utilizing protective measures such as, requiring the use of weed-free forage, mulch, seed, gravel and other materials; restricting the movement of contaminated firewood and having live bait restrictions or other methods that reduce the spread of invasive species.
  Lead: DOI (BLM)
  Participants: USDA (APHIS, NRCS); DOI (NPS, FWS); DOD (COE)

- **Implementation Task CM. 2.2:** Support on-the-ground control and management efforts.

  Performance Element CM.2.2.1: Increase the percentage of high priority, at-risk acres treated according to science-based plans that monitoring has demonstrated to have been implemented successfully.
  ***Lead*: NISC Staff (to collate information)**
  ***Participants*: USDA (APHIS, FS, ARS); DOD (COE)**

  Performance Element CM.2.2.2: Increase the ratio of projects technically supported vs. the total number of on-the-ground projects requesting technical support.
  ***Lead*: NISC Staff (to collate information)**
  ***Participants*; USDA (APHIS); DOI (BLM, FWS, NPS); DOD (COE)**

  Performance Element CM. 2.2.3: Increase the number of on-the-ground projects technically supported.
  ***Lead*: NISC Staff (to collate information)**
  ***Participants*: USDA (APHIS, ARS, FS, NRCS); DOD; DOI (BLM, FWS, NPS); DOD (COE)**

  Performance Element CM. 2.2.4: Increase the number of acres receiving "on-the-ground" control and management treatments.
  ***Lead*: NISC Staff (to collate information)**
  ***Participants*: USDA (APHIS, FS, NRCS, ARS); DOI (BLM, FWS, NPS); DOD (COE)**

OBJECTIVE CM.3: DEVELOP WORKFORCE COMPETENCIES TO PERFORM CONTROL AND MANAGEMENT ACTIVITIES.

- **Implementation Task CM. 3.1:** Increase invasive species training for land and water resource managers, and others as appropriate.

  Performance Element CM. 3.1.1: Increase the number of training workshops, training materials developed, and total number of personnel and volunteers trained, including but not limited to, training in Integrated Pest Management.
  ***Leads*: USDA (CSREES); DOI (FWS)**
  ***Participants*: DOI (BLM, NPS); USDA (CSREES, NRCS, ERS, ARS); DOD; DOD (COE)**

OBJECTIVE CM.4: ENHANCE ECOSYSTEM RECOVERY PROCESSES THAT CONTRIBUTE TO CONTROL AND MANAGEMENT.

- **Implementation Task CM.4.1:** Enhance ecosystem recovery decision tools and conduct ecosystem assessments**.**

  Performance Element CM.4.1.1: Increase the efficiency, accuracy, and precision of monitoring and mapping operations.
  ***Lead*: DOI (USGS)**
  ***Participants*: USDA (APHIS, NRCS, ARS, ERS, CSREES); NASA; DOD (COE)**

  Performance Element CM.4.1.2: Enhance ecosystem recovery models and evaluate ecosystem assessment methods.
  ***Lead*: DOD (COE)**
  ***Participants*: DOI (USGS); USDA (FS, ARS, CSREES)**

  Performance Element CM.4.1.3: Report the number of acres and species monitored and mapped.
  ***Lead*: NISC Staff (to collate information)**
  ***Participants*: DOI (USGS, FWS, BLM); USDA (FS, NRCS, ARS); NASA; DOD (COE)**

Restoration

STRATEGIC GOAL 4: Restore native species and habitat conditions and rehabilitate high-value ecosystems and key ecological processes that have been impacted by invasive species to meet desired future conditions.

Introduction

Restoration treatments are an integral part of control and management efforts to help guard against future re-infestations and further harm. Section 2(a) (2) of EO 13112 charges Federal agencies to "provide for restoration of native species and habitat conditions in ecosystems that have been invaded". Additionally, Section 4 (d) of EO 13112 calls on NISC to develop guidance, in coordination with the Council on Environmental Quality (CEQ), "including the procurement, use and maintenance of native species as they affect invasive species." New restoration guidance will be shared widely with federal, tribal, state, and private landowners and water managers.

Habitats and ecological processes can suffer cumulative impacts from the direct and indirect effects of invasive species and other environmental stressors. Complex ecological relationships that have evolved over evolutionary time scales can be at risk if invasive species interrupt nutrient cycling, pollination, predator/prey relationships or other ecological processes and services. Processes altered by human activity may promote invasion by inhibiting the reproduction and/or survival of native or desirable species.

The 2001 Plan recognized the importance of using native species to restore long-term ecosystem resiliency. For shorter term rehabilitation and site stabilization, both native and desired nonnative species appropriate to the site have been used successfully. Evaluation of available materials that can successfully compete with invasive species is needed, as is the development of new materials. These will serve as an ecological transition while native components and ecosystem processes develop. Assessment of the ecosystem's desired future condition and restoration potential across a range of spatial scales allows managers to strategically control and eradicate invasive species and to restore habitats with appropriate species. These efforts can result in lower control costs, increased effectiveness, and improved chances for ecosystem restoration success.

OBJECTIVE R.1: INCLUDE INVASIVE SPECIES CONSIDERATIONS IN FORMAL GUIDANCE FOR RESTORATION PROJECTS.

- **Implementation Task R.1.1:** Address invasive species concerns in planning for restoration projects in federal land and water management field and guidance manuals.

  Performance Element R.1.1.1: Amend existing or develop new land use planning protocols and Best Management Practices within federal agencies to include restoration activities to mitigate impacts of invasive species.
  ***Leads*: DOI (NPS, BLM); USDA (FS)**
  ***Participants*: DOI (FWS); USDA (NRCS);DOD (COE and other agencies); DOC (NOAA)**

Performance Element R.1.1.2: Identify sources of native and appropriate nonnative materials for restoration projects carried out by federal agencies.
***Leads*: DOI (NPS); USDA (NRCS)**
***Participants*: USDA (FS, CSREES, ARS); DOD (COE and other agencies; DOI (FWS, BLM)**

Performance Element R.1.1.3: Incorporate invasive species prevention plans, such as those that utilize HACCP, into federally-funded or authorized restoration projects.
***Lead*: NISC Staff (to collate information)**
***Participants*: DOI (BIA, BLM, BOR, FWS, NPS); USDA (FS, NRCS); EPA; DOD; NOAA**

OBJECTIVE R.2: RESTORE HIGH-VALUE AREAS IMPACTED BY INVASIVE SPECIES.

- **Implementation Task R.2.1:** Restore sites that have the highest ecological or economic value or contribute most to protecting human health.

Performance Element R.2.1.1: Conduct and report on four interagency restoration projects that demonstrate the success of information sharing, plant (and animal) materials sharing, techniques for cost-effective modeling, and documentation of results, including decision support tools.
***Leads*: NISC staff, DOI (FWS, BLM, NPS); USDA (NRCS); DOD (COE)**
***Participants*: DOI (BOR, USGS); DOD; USDA (APHIS, FS, ARS); EPA**

Performance Element R.2.1.2: Provide technical assistance on the species and methods to use in restoring native species, including the use of low impact, nonnative or "transitional" species where appropriate.
***Leads*: DOI (FWS); USDA (NRCS); DOD (COE)**
***Participants*: DOI (NPS, BLM, BOR, USGS); USDA (FS, APHIS, ARS)**

Performance Element R.2.1.3: Provide technical assistance on site selection, site modification, and prioritization for restoration projects.
***Leads*: DOI (FWS, USGS); DOD (COE)**
***Participants:* DOI (NPS, BLM, BOR); USDA (APHIS, NRCS)**

Performance Element R.2.1.4: Conduct at least four (4) information sharing projects with stakeholders about invasive species restoration projects.
***Lead*: USDA (NRCS)**
***Participants*: USDA (APHIS, ARS); DOD; DOI (FWS, USGS); DOC (NOAA)**

OBJECTIVE R.3: RESTORE HABITAT AT MULTIPLE SCALES AND DEMONSTRATE MODEL APPROACHES THAT ENGAGE LOCAL COMMUNITIES AND THE PUBLIC.

- **Implementation Task R.3.1:** Coordinate multi-taxa restoration projects at the regional, watershed or landscape level (Healthy Lands Initiative, for example), addressing water quality, fisheries (both fresh and marine), and terrestrial plants and animals (including their pests and pathogens) in restoration planning.

Performance Element R.3.1.1: Work across agencies to create demonstration projects in at least three geographic or regional focus areas over the next three years.
***Leads*: DOI (FWS, NPS, BLM); DOD (COE)**
***Participants*: DOI (BOR, USGS); DOC (NOAA); EPA**

Performance Element R.3.1.2: Document four successful restoration projects involving recovery from invasive species impacts, for example on private lands or in coastal environments, with nongovernmental cooperators.
***Leads*: NISC staff; DOI (FWS); DOD (COE)**
***Participants*: EPA; DOD**

Performance Element R.3.1.3: Document four successful fire rehabilitation and fuels treatment projects involving recovery from invasive species impacts on different kinds of public lands (such as range, forest, shrub, and steppe).
***Leads*: NISC staff; USDA (FS); DOI (BLM)**
***Participants*: DOI (OWFC, FWS, NPS, BIA)**

Organizational Collaboration

STRATEGIC GOAL 5: Maximize organizational effectiveness and collaboration on invasive species issues among international, federal, state, local and tribal governments, private organizations and individuals.

OBJECTIVE OC.1: IMPROVE KNOWLEDGE AND UNDERSTANDING OF LEGAL AND REGULATORY TOOLS AVAILABLE TO ADDRESS INVASIVE SPECIES.

- **Implementation Task OC.1.1:** Complete an analysis of current federal laws and regulations dealing with invasive species.

  Performance Element OC.1.1.1: Complete a brief status report based on the existing legal and regulatory analyses.
  Lead: NISC Staff
  Participants: DOI; USDA; DOC and other NISC members as appropriate

- **Implementation Task OC.1.2:** Provide information and briefings as requested on invasive species issues.

  Performance Element OC.1.2.1: NISC will respond to requests for information or briefings within 30 days.
  Lead: NISC Staff
  Participants: NISC members as appropriate

OBJECTIVE OC.2: EXPAND THE COORDINATION OF INVASIVE SPECIES PROGRAMS AND EXPENDITURES TO LEVERAGE RESOURCES.

- **Implementation Task OC.2.1:** Update the invasive species crosscut budget for Federal agency expenditures concerning invasive species, changing its name to the **Invasive Species Inter-Agency Performance Budget** (Performance Budget). Request input from ISAC, ANSTF, Federal Interagency Committee on the Management of Noxious and Exotic Weeds (FICMNEW), and the Federal Interagency Committee on Invasive Terrestrial Animals and Pathogens (ITAP) on initiatives to be included in future Performance Budgets.

  Performance Element OC.2.1.1: Complete Performance Budgets for fiscal years 2010, 2011, 2012 and 2013 as directed, along with reports on prior year's performance.
  Lead: NISC Staff
  Participants: All NISC members

OBJECTIVE OC.3: IMPROVE FEDERAL RESEARCH CAPACITY AND COORDINATION TO ADDRESS A BROADER ARRAY OF INVASIVE SPECIES ISSUES.

- **Implementation Task OC.3.1:** Improve the coordination and effectiveness of federal research.

  Performance Element OC.3.1.1: Establish an Invasive Species Working Group under the OSTP/Committee on Environment and Natural Resources/Subcommittee on Ecological Systems, to coordinate existing federal invasive species research activities and outline federal research priorities by February 2009.
  ***Lead*: DOI (USGS)**
  ***Participants*: DOC (NOAA); EPA; DOD; NASA; DOS**

  Performance Element OC.3.1.2: Provide research results on invasive species or summaries, as appropriate, and take steps to make information provided by agencies more readily available.
  ***Lead*: USDA (ARS/NAL)**
  ***Participants*: NISC Staff; USDA (ARS, FS, ERS, CSREES); DOI (USGS); EPA; DOC (NOAA); NASA; DOD**

- **Implementation Task OC.3.2:** Improve economic modeling of invasive species impacts.

  Performance Element OC 3.2.1: Improve modeling of invasive species prevention actions to determine their costs and benefits.
  ***Lead*: USDA (ERS)**
  ***Participants*: EPA**

  Performance Element OC 3.2.2: Improve economic modeling of control and management actions to determine their costs and benefits.
  ***Lead*: USDA (ERS)**
  ***Participant*: DOC (NOAA); EPA**

  Performance Element OC 3.2.3: Develop cost and benefit analysis models of alternative control methods.
  ***Leads*: USDA (FS, CSREES, NRCS, APHIS, ERS)**
  Participants: *None*

OBJECTIVE OC.4: ENHANCE POLICY AND IMPROVE REGULATORY PROCESSES ON INVASIVE SPECIES.

- **Implementation Task OC.4.1:** As required by EO 13112, prepare, in cooperation with the President's Council on Environmental Quality (CEQ), guidance to federal agencies to prevent and control invasive species that is fully compliant with the National Environmental Policy Act (NEPA).

Performance Element OC.4.1.1: Prepare draft NEPA guidance for CEQ consideration and finalize.
***Leads*: NISC Staff, CEQ**
***Participants*: All NISC members**

- **Implementation Task OC.4.2:** Collect, organize and make available federal agency guidance to prevent, control and manage invasive species.

  Performance Element OC.4.2.1: Each NISC agency shall make available their existing policies on prevention, EDRR, and control of invasive species.
  ***Lead*: NISC Staff**
  ***Participants*: All NISC members**

- **Implementation Task OC.4.3:** Develop an improved regulatory process for the development, testing, assessment and approval of biological control agents.

  Performance Element OC.4.3.1: Implement improved regulatory process.
  ***Lead*: USDA (APHIS)**
  ***Participants*: USDA (ARS, CSREES, NRCS)**

OBJECTIVE OC.5: STRENGTHEN COORDINATION AMONG FEDERAL AGENCIES TO FACILITATE THE DEVELOPMENT OF INTERNATIONAL PRIORITIES FOR INVASIVE SPECIES.

- **Implementation Task OC.5.1:** Promote and facilitate communication on international invasive species issues and activities.

  Performance Element OC.5.1.1: NISC staff prepares the monthly report of upcoming international meetings on invasive species to be distributed to federal agencies and others.
  ***Leads*: NISC Staff; DOS**
  ***Participants*: USTR, USAID, DHS, EPA; DOD (COE)**

- **Implementation Task OC.5.2:** Represent NISC interests in the formulation of United States policy positions related to invasive species in the context of discussions under relevant international organizations and agreements, e.g. Convention on Biological Diversity (CBD), International Plant Protection Convention (IPPC), Organisation International de Epizooties (OIE), World Health Organization (WHO), Food and Agriculture Organization (FAO), International Maritime Organization (IMO) and other relevant global or regional fora.

  Performance Element OC.5.2.1: In cooperation with federal agencies, NISC will contribute to the development of United States positions on invasive species during preparation for relevant international meetings.
  ***Leads*: DOS; NISC Staff**
  ***Participants*: NISC members as appropriate**

- **Implementation Task OC.5.3:** As appropriate, seek to incorporate invasive species issues into the environmental cooperation mechanisms developed in connection with free trade agreements (FTA).

  Performance Element OC.5.3.1: Department of State-led interagency working groups on FTA environmental cooperation mechanisms will assist in developing cooperative activities related to invasive species.
  ***Lead*: DOS**
  ***Participants*: USTR, EPA, DOI, USDA (FAS, ERS, ARS, APHIS); DOC**

OBJECTIVE OC.6: ENHANCE OUTREACH ON INVASIVE SPECIES.

- **Implementation Task OC.6.1:** Determine approaches regarding invasive species pathways for strategic outreach to targeted user groups and businesses.

  Performance Element OC.6.1.1: Develop outreach materials for target audiences cooperatively with relevant stakeholders and make available through the internet.
  ***Leads*: DOC (NOAA); USDA (APHIS)**
  ***Participants*: USDA (FS, NRCS, ARS, FAS); DOI (FWS)**

- **Implementation Task OC.6.2:** Work with existing educational organizations to enhance invasive species information delivery to primary and secondary educators.

  Performance Element OC.6.2.1: Information about at least eight invasive species or federal invasive species programs provided to educational organizations/invasive species outreach programs and reported to the NISC staff.
  ***Lead*: NISC staff**
  ***Participants*: All NISC Members**

- **Implementation Task OC.6.3:** Develop basic messages for common public awareness concerning invasive species for NISC member agencies and staff to utilize.

  Performance Element OC.6.3.1: Communicate clear and consistent general messages on invasive species to all NISC members and stakeholders, so that they may include these points when a new invasive species action, regulation or policy is announced. Communicate via the Internet.
  ***Lead*: NISC Staff**
  ***Participants*: All NISC members**

OBJECTIVE OC.7: IMPROVE AND STREAMLINE NISC MEMBERS' REPORTING ON INVASIVE SPECIES PROGRAMS AND ACTIVITIES.

- **Implementation Task OC.7.1:** The following reports are required.

  Performance Element OC.7.1.1: Each NISC member submits one formal (draft and final) report per fiscal year, tracking the implementation of the NISC 2008 Plan. NISC Staff will complete a streamlined reporting template within three months. Annual summary report by NISC is available on its website by February 28 of each year along with the individual NISC member reports.
  ***Lead*: NISC Staff**
  ***Participants*: All NISC Members**

  Performance Element OC.7.1.2: NISC members provide a consistently formatted written report in response to ISAC recommendations, action items and requests.
  ***Lead*: NISC staff (in consultation with ISAC)**
  ***Participants*: All NISC Members**

  Performance Element OC.7.1.3: Report on agency participation in the NISC Invasive Species Performance (Crosscut) Budget.
  ***Lead*: NISC Staff**
  ***Participants*: All NISC Members**

OBJECTIVE OC.8: ENHANCE DATA STANDARDS AND QUALITY TO IMPROVE ACCESS AND ABILITY TO SEARCH ACROSS DATA BASES AND FEDERAL DATA SOURCES.

- **Implementation Task OC.8.1:** Develop and provide portal and reference information, as well as public access to federal research information, as appropriate and consistent with applicable law.

  Performance Element OC.8.1.1: Summarize research results on invasive species and take steps to make it more readily available based on information provided by agencies.
  ***Lead*: USDA (ARS/NAL)**
  ***Participants*: NISC Staff; All NISC Members**

  Performance Element OC.8.1.2: Enhance and maintain the NISC website to provide an overview of federal invasive species efforts and policies; access to, and information about NISC member agencies and their invasive species programs and information about NISC, its activities, the Invasive Species Management Plan, and ISAC.
  ***Lead*: NISC Staff**
  ***Participants*: All NISC Members**

  Performance Element OC.8.1.3: The Invasive Species Compendium will be

developed by interested agencies.
***Lead*: USDA (ARS)**
***Participants*: USDA (APHIS, CSREES, NRCS); DOC (NOAA)**

Performance Element OC.8.1.4: Share information on federal invasive species grant opportunities and programs by linking from the NISC website to grant information on existing agency websites.
***Lead*: NISC Staff**
***Participants*: All NISC Members**

- **Implementation Task OC.8.2:** Work cooperatively to develop common data standards and enhance databases.

Performance Element OC.8.2.1: Improve and expand participation in the aquatic invasive species information system NISbase.
***Leads*: DOI (USGS); DOC (NOAA), SI**
***Participants*: DOI (FWS, BLM); DOD (COE); USDA (APHIS)**

Performance Element OC.8.2.2: Link and expand databases of invasive plant pathogens.
***Lead*: USDA (ARS)**
***Participants*: USDA (FS, APHIS)**

Performance Element OC.8.2.3: Develop and implement an invasive species pathways database.
***Lead*: USDA (APHIS)**
***Participants*: USDA (ARS, FAS); Other NISC agencies**

Performance Element OC.8.2.4: Enhance the PLANTS database in regard to invasive species and pollinators.
***Lead*: USDA (NRCS)**
***Participants*: USDA (ARS, FS, APHIS)**

Performance Element OC.8.2.5: Improve and expand the U.S. Government's participation in the Global Invasive Species Information Network (GISIN) and the Inter-American Biodiversity Information Network (IABIN).
***Lead*: DOI (USGS)**
***Participants*: DOS; DHS; NASA**

Appendix 1: List of Acronyms Used

ANSTF	Aquatic Nuisance Species Task Force
APHIS	Animal and Plant Health Inspection Service
ARS	Agricultural Research Service
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best Management Practices
BOR	Bureau of Reclamation
CBD	Convention on Biological Diversity
CDC	Centers for Disease Control and Prevention
CEQ	Council on Environmental Quality
CG	Coast Guard
CM	Control and Management
COE	Army Corps of Engineers
CSREES	Cooperative State Research, Education, and Extension Service
DHS	U.S. Department of Homeland Security
DOC	U.S. Department of Commerce
DOD	U.S. Department of Defense
DOI	U.S. Department of the Interior
DOS	U.S. Department of State
DOT	U.S. Department of Transportation
ED	Early Detection
EDRR	Early Detection and Rapid Response
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ERS	Economic Research Service
FAO	Food and Agriculture Organization
FAS	Foreign Agricultural Service
FICMNEW	Federal Interagency Committee on the Management of Noxious and Exotic Weeds
FS	Forest Service
FTA	Free Trade Agreements
FWS	U.S. Fish and Wildlife Service
GISIN	Global Invasive Species Information Network
HACCP	Hazard Analysis and Critical Control Points
HHS	U.S. Department of Health and Human Services
IABIN	Inter-American Biodiversity Information Network
IMO	International Maritime Organization
IPPC	International Plant Protection Convention
ISAC	Invasive Species Advisory Council

ITAP	Federal Interagency Committee on Invasive Terrestrial Animals and Pathogens
MARAD	U.S. Department of Transportation Maritime Administration
NAL	National Agricultural Library
NAPPO	North American Plant Protection Organization
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NGO	Nongovernmental Organizations
NISC	National Invasive Species Council
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
OC	Organizational Collaboration
OIE	Office International des Epizooties
OWFC	Office of Wildland Fire Coordination
P	Prevention
R	Restoration
RA	Rapid Assessment
RR	Rapid Response
SI	Smithsonian Institution
SLSDC	Saint Lawrence Seaway Development Corporation
SWPM	Solid Wood Packing Materials
USAID	U.S. Agency for International Development
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
USTR	Office of the U.S. Trade Representative
USTREAS	U.S. Department of the Treasury
WHO	World Health Organization
WNV	West Nile Virus